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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/071,919

02/08/2002

Biagio Bisanti

TI-32512

2279

23494

7590

03/14/2005

TEXAS INSTRUMENTS INCORPORATED

P O BOX 655474, M/S 3999

DALLAS, TX 75265

EXAMINER

NGUYEN, SIMON

ART UNIT

PAPER NUMBER

2685

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/071,919

Applicant(s)

BISANTI ET AL.

Examiner

SIMON D NGUYEN

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 11-14 is/are allowed.
- 6) ☒ Claim(s) 10 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 16 is objected to because of the following informalities: in claim 16, the Applicant claims "control circuitry includes a phase demodulator" and in claim 17, "control circuitry further comprises a comparison circuitry". In my view, claim 16 should change to ..circuitry includes a phase demodulator... in order to corresponding with the term "circuitry for producing an injection modulation signal" of claim 15, and claim 17 remains the same. Otherwise, explain.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10, 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (5,920,808).

Regarding claim 10, Jones discloses a digital modulator (111) using in a transmitter (fig.2), comprising; a PLL (237) loop producing a modulated RF signal; a phase demodulator (125) for receiving unmodified the modified RF signal and an output for providing a phase information signal; a comparator (trainer 131) for receiving the

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unmodified modulated RF signal and an output for providing a phase information signal (error signal) to a predistorter (107) (fig.2, lines 30-47, column 6 line 55 to column 7 line 58, column 9 lines 9-35).

Regarding claims 15 and 18, Jones discloses a communication device (fig.2), comprising: a PLL (237) combining with a modulator (111) to generates modulated signal (119), wherein the modulated signal feedback (119) to a demodulator (125), a trainer (131) connected to an output of the demodulator compares a received demodulating signal with a modulating signal (I, Q from digital modulator 103), wherein the trainer outputs a control signal to control the error signal (distortion signal) (figs.1-2, column 4 lines 30-54), which means the modulated signal injected in to the PLL at a point before the loop filter.

Regarding claim 16, Jones further discloses the circuitry includes a phase demodulator (125 of fig.2).

Regarding claim 17, Jones further discloses the control circuitry includes a comparator (trainer 131 of fig.2). It should noted that the trainer compares the modulated signal feedbacking from the demodulator and a modulation signal from the digital modulator 103 for detecting/controlling an in-phase/quadrature error signal prior to send to the pre-distorter 107, which means the trainer inherently acts as a comparator.

Regarding claim 19, Jones discloses the modulator comprising preconditioning the modulation signal (pre-distorting by predistorter 107 of fig.2) in the digital domain prior to injection into the PLL (fig.2, column 6 lines 30-47).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (5,920,808).

Regarding claim 20, Jones discloses the predistorter 107 for preconditioning the modulation signal. However, Jones does not specifically disclose the predistorter as a pre-emphasis filter. It should be noted that Jones discloses that the predistorter correctly compensates for the distortion caused by the PA and wherein the trainer controls the in-phase/quadrature signals inputted to the predistorter (column 6 line 30-47). Therefore, the predistorter is considered as a pre-emphasis filter, which is obviously to those skilled in the art in order to compensate the modulated signal.

***Allowable Subject Matter***

6. Claims 1-9, 11-14 are allowed.

Regarding claims 1 and 7, the prior art of record fails to teach an RF modulator having a comparator for comparing a modulated RF signal from a phase demodulator and an modulation signal and outputting an error signal wherein the error signal is

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adjusted by a pre-emphasis filter prior to provide a modulation signal to an input of the PLL.

Regarding claims 2-9, 11-14, these claims are allowed as being dependent upon independent claims that have been allowed.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 15-20 have been considered but are moot in view of the new ground(s) of rejection.

The prior art of Jones discloses the digital quadrature modulator for producing an injection modulation signal (119), wherein the injection modulation signal feedbacks to the demodulator, where the modulated signal outputted from the demodulator is compared with the modulation signal at the trainer to generate the modulation signal. Then the modulation signal inputs (injects) to the predistorter, which is at a point before the PLL(fig.2)

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Simon Nguyen whose telephone number is (703) 308-1116. The examiner can normally be reached on Monday-Friday from 7:00 AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban, can be reached on (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Hand-delivered response should be brought to Crystal Park II,

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2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Simon Nguyen

March 5, 2005

A handwritten signature in black ink that reads "Simon Nguyen" with a stylized flourish at the end.

**SIMON NGUYEN**  
**PRIMARY EXAMINER**